DOCUMENT RESUME

ED 234 624 FL 013 943

AUTHOR Offenberg, Robert M.; And Others
TITLE An Individualized Multi-Media Bilingual Education Magnet Model. Evaluation of the First Year, 1976-1977. Report 7863. Title VII Project.
INSTITUTION Philadelphia School District, Pa. Office of Research and Evaluation.
SPONS AGENCY Department of Education, Washington, DC.
PUB DATE Mar 78
GRANT G00-760-4897
NOTE 22p.; For related documents, see FL 013 944-945.
PUB TYPE Reports - Evaluative/Feasibility (142)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Bilingual Education Programs; Chinese; Elementary Secondary Education; English (Second Language); French; Italian; Korean; *Magnet Schools; Portuguese; *Program Evaluation; Program Implementation; Second Language Learning; Spanish; Vietnamese
IDENTIFIERS Pennsylvania (Philadelphia)

ABSTRACT

The first year of an individualized bilingual magnet project was evaluated. A total of 254 elementary and secondary students in Philadelphia participated. Multimedia bilingual education was provided to students of non-English speaking backgrounds at two sites. At the elementary site, bilingual education was offered in Spanish, Korean, Vietnamese, French, Italian, and Chinese. Evaluation of pupil performance objectives suggested that the magnet pupils acquired English more rapidly than did similar pupils city-wide. Dropout incidence in the high school group was very low, but no significant change in attendance was noted. (Author/RW)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED234624

TITLE VII PROJECT

AN INDIVIDUALIZED MULTI-MEDIA BILINGUAL EDUCATION MAGNET MODEL

EVALUATION OF THE FIRST YEAR 1976 -- 1977

Report

7863

Prepared by

Robert M. Offenberg
Research Associate

Robert Epstein
Research Assistant

Carlos Rodriquez Acosta
Research Intern

THE SCHOOL DISTRICT OF PHILADELPHIA

OFFICE OF RESEARCH AND EVALUATION
Division of Federal Evaluation Resource Services

OFFICE OF CURRICULUM
Division of Foreign Language Education

FL013943

March 1978

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

X This document has been reproduced as received from the person or organization originating it.

☐ Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

THE SCHOOL DISTRICT OF PHILADELPHIA

Superintendent of Schools
Dr. Michael P. Marcase

Executive Deputy Superintendent
Dr. Robert L. Poindexter

INSTRUCTIONAL SERVICES

Dr. I. Ezra Staples
Deputy Superintendent for Instructional Services

Dr. Bernard G. Kelner
Associate Superintendent for Curriculum

Dr. Eleanor Sandstrom
Director of Foreign Language Education

RESEARCH AND EVALUATION

Dr. Michael H. Kean
Executive Director, Research and Evaluation

Dr. Stephen H. Davidoff
Assistant Director, Federal Evaluation Resource Services

FEDERAL PROGRAMS

Mr. Thomas C. Rosica
Executive Director

BOARD OF EDUCATION

Mr. Arthur W. Thomas, President
Mrs. Edward Oberholtzer, Vice President

Mr. Augustus Baxter
Mrs. Lawrence Boonin
Mr. Samuel H. Rubin
Robert M. Sebastian, Esq.
Mrs. Michael Stack
George Philip Stahl, Jr., Esq.
Dr. Nicholas Trolio

This program was funded in part by the United States Office of Education, ESEA Title VII Grant Number G00-760-4817

ABSTRACT

ADMINISTRATOR:	Eleanor L. Sandstrom
HEADQUARTERS:	Room 300, 21st Street and Parkway
TELEPHONE:	299-7791
OPERATING YEARS:	1976-77
GRADES SERVED:	K-6 and 10-12
NO. OF PUPILS:	555 (Projected)
NO. OF PROGRAM SITES:	2
NO. OF EMPLOYEES (FUNDED BY TITLE VII GRANT):	5 Professional (2 full time; 3 shared time), 2 Paraprofessional 1 Clerical
CURRENT BUDGET:	$127,185 $321,824 (LEA Supplementation)
SERVICE PROVIDED:	Instruct pupils in their mother tongues as they master English
EVALUATION TEAM:	Robert Offenberg, Bob Epstein, Carlos Rodriquez Acosta

The bilingual project, An Individualized Multi-media Bilingual Magnet Model was funded by the U.S. Office of Education several months later than anticipated. As a result, the completion of some enabling objectives was delayed. Other enabling objectives were modified. By January, the program was in full operation and by year-end the program was serving 254 pupils. At the elementary site, bilingual education was provided in Spanish, Portuguese and Korean. At the secondary site instruction was provided in Spanish, Korean, Vietnamese, French, Italian and Chinese. Evaluation of pupil performance objectives suggested that pupils acquired English more rapdily than did similar pupils city-wide. Dropout incidence in the high school component was very low. Year-end data were also gathered about reading in English and Spanish and high-school pupils' attendance. These descriptive data are expected to be useful in evaluation of the first full year of program operation, 1977-1978.

CONTENTS

	Page
Objectives for 1976-1977	1
Preface	2
Status Report, October 1976 - December 30, 1976 ..	3
Status Report, January 1977 - March 1977	4
Final Report, March 1977 - June 1977	5
Appendix, Evaluation of the Aural Comprehension Objective of the Citywide Title I-English-to-Speakers-of-Other-Languages Program.....	15

OBJECTIVES FOR 1976-1977

Enabling Objectives

1. By the beginning of the 1976-1977 school year, the resource specialists and teacher aides speaking the languages required in each of the two program sites will be employed. Other staff with required expertise will be employed.

2. From September 1976 through December 1976, the Project Director, the program staff and the Director of Computer-based Instructional Systems will purchase and have installed the necessary instructional materials and equipment for the Bilingual Individualized Multi-Media Learning Center. This will include:

    - Acquisition of appropriate grade-level instructional materials for teaching reading and for other subjects in each of the languages of the program.

    - Organization of the Bilingual Individualized Multi-Media Learning Center at each of the schools served by the program.

    - Reproduction and delivery of off-line materials needed for the computer-managed and computer-assisted instruction at the secondary school site.

    - Acquisition of other programmed instructional materials.

3. A program will begin in September, 1976 that will attract non-English-dominant Spanish-, Portuguese-, Korean-, Chinese-, Vitenamese-, Italian- and French-speaking pupils who live out side the regular boundary of the project schools, thus creating the "magnet" programs. The recruitment program will include:

    - News releases sent to newspapers serving each of the language groups.

    - Announcements on radio programs serving speakers of the languages of the program.

    - Pupil recruitment by members of the program's parent advisory group.

    - Notification to all principals of elementary and secondary schools describing the new programs and asking them to identify students who can benefit from participation in them.

4. Program staff speaking Chinese, Italian, Portuguese, Vietnamese, Korean and French will, with the assistance of supervisors and evaluation personnel, develop informal reading inventories to be used in subsequent years to evaluate mother-tongue reading performance of pupils speaking these languages. These inventories will be prepared by June, 1977.

Product Objectives

1. The rate of acquisition of English speaking and comprehension skills of pupils, as measured by the Philadelphia ESOL Screening Test and the Test of Aural Comprehension, will be increased to a statistically significant degree ($p < .05$).

2. The rate of acquisition of English reading skills, as measured by the Wide Range Reading Test, will increase significantly ($p < .05$) among pupils enrolled in Grade 2 and above.

3. The rate of acquisition of Hispanic pupils' reading competence in the Spanish language will increase significantly ($p < .05$). The tests to be used, depending on grade level, are:

   Test de destrezas basicas en lecutra,
   Prueba de lectura (de Puerto Rico) and
   The Inter-American Tests of Reading (Level 4).

4. Fewer pupils served by the program in 1976-1977 will drop out of high school than did pupils of the same ethnic origin who were attending the same school in 1975-1976. Level of statistical significance will be $p < .05$.

5. Secondary level pupils served by the program, who attended school in Philadelphia in 1975-1976, will have significantly ($p < .05$) fewer absences in the program than they did the year before the program began.

PREFACE

The first annual evaluation of this project consists of three parts. The first two are status reports assessing the implementation of the program. The third part, the final report, emphasizes evaluation of "product" or pupil performance objectives. In addition, one appendix, discussing city-wide performance of Title I pupils in the ESOL program completes the report. The appendix is referred to in the evaluation of the first product objective.

STATUS REPORT

October 1, 1976 -- December 30, 1976

This report describes program status as of late December, 1976.

Final approval and official notification of funding were expected during July 1976, but were received on October 1, 1976. Because of the late date of the funding, preliminary program activities which should have taken place in the summer of 1976 were not implemented until after October 1. As a result, completion of enabling objectives was delayed and the sequence of completion dates was modified. Product objectives were also modified to reflect the late funding.

At South Philadelphia High School and Birney Elementary School, teaching staff were available for instruction. At the high school, a French-, an Italian-, two Spanish-, and a Vietnamese- and Chinese speaking teacher already in service became members of the program faculty. A Korean-speaking teacher was hired. All of these teaching positions are funded by the LEA. A Spanish-speaking aide was hired to manage the high school Individualized Multi-Media Center. At the elementary school site, two Korean-, two Spanish- and a Portugese-speaking teacher already in service became members of the program faculty. These teaching positions were funded by the LEA. An aide, who is a native speaker of Portugese, was hired to manage the Individualized Multi-Media Center at the elementary school. Examinations for two Site Coordinator positions were held and a list of eligible candidates prepared. The Site Coordinator positions were filled December 20, 1976.

The Multi-Media Center at the high school is to provide computer-based instruction. As of December, four computer terminals were installed in a classroom. Soft-ware installation and connection to a time-shared computer were progressing, but not completed. At both sites, some instructional materials and audiovisual equipment used in the past were on hand, some new purchases for the Multi-Media Centers were delivered, and other materials and equipment were on order. At the high school the center was in use by December; at the elementary school site operation of the center was anticipated by February 1.

According to preliminary (November and December) monitoring observations, the Birney Elementary School program was serving 113 pupils. The South Philadelphia High School program was serving 137 pupils. Because of the late funding, not all pupil-recruitment media listed in Objective 3 were used. Several multi-lingual parent meetings were held at Birney to recruit pupils and meetings were held with District Superintendents and principals to inform them of the new program. Discussion with Archdiocesan School leadership of the ways that the Multi-Media Centers could be used by pupils in neighboring parochial schools was in progress.

Due to the late funding, systematic pretesting was not conducted. Posttests were scheduled for late Spring and analyses planned did not require pretests.

In conclusion, because an individualized Milti-Media Bilingual Education Magnet Model was not funded by the expected date, the program was only partially implemented by December. Year-end findings of pupil performance will have to be interpreted in this light.

STATUS REPORT

January 1977 - March 1977

This report is an update of the October- December 1976 Status Report. It describes the progress made in carrying out program goals and enabling objectives during the period January through March 15, 1977.

By mid February, all major program goals stated in the 1976-1977 proposals had been accomplished. A Bilingual Individualized Multi-Media Learning Center (BIMLC) had been installed and was functioning at both sites. Most multi-media instructional holdings for the centers had been acquired, and computer-based instruction was taking place. Bilingual staff had been assigned at each site and were fulfilling their functions as described in the proposal. Orientation sessions had taken place at both centers. Monitoring showed that pupils and teachers (and some parents) had learned how to use the multi-media equipment. Daily schedules for pupils were developed for group and individualized instruction in English and in the mother tongue in the classrooms and in the BIMLC.

Project status with regard to each enabling objective for 1976-1977 is described below:

Enabling Objective 1 - Personnel described in the proposal were carrying out the instructional program and supportive activities needed to operate it. (The October-December 1976 Status Report described the appointment and assignment of personnel.)

Enabling Objective 2 - Despite late funding of the program computer equipment was installed at the high school by the Division of Instructional Systems within one month of the date specified in the proposal. Soft-ware for computer-assisted and computer-managed instruction was edited, duplicated and delivered.

Other multi-media instructional systems were acquired for the BIMLC, such as System 80 and Language Masters. Additional instructional systems were on order.

Contact had been made through phone calls and visits to Bilingual Technical Assistance Centers in Miami, Florida; Carbondale, Illinois; Falls River, Mass.; Washington, D.C. Seton Hall University; and publishers in various cities in order to locate instructional materials in Portugese, Chinese, Korean and Vietnamese.

Some of these materials had been purchased, some had been lent to the project and permission to reproduce them had been secured.

Enabling Objective 3 - Because of the late funding, project management was unable to fully implement the "magnet" concept. The district superintendents and principals of neighboring public and parochial schools had been notified about the program. Assistance of community advisory groups had been obtained. Newspapers and radio programs had not been used for pupil recruitment. Program management has set an objective describing full use of these media for 1977-1978.

Enabling Objective 4 - Informal reading inventories for evaluation of mother-tongue reading performance (in languages other than Spanish) have not been prepared. Program management delayed undertaking this task until 1977-1978.

Enabling Objective 5 - Eight monitoring visits have shown that teachers and aides assigned to the Bilingual Individualized Multi-Media Center have been helping pupils make use of the instructional equipment and materials. Pupils observed had no difficulty in using the equipment and the evaluation team member noted that the pupils seemed enthusiastic about learning with System 80, Language Masters and the computer programs.

In conclusion, three of the five enabling objectives were completed by March 15. One of the objectives was partially fulfilled. As the one remaining objective deals with development of measures for evaluation, the program can be regarded as in full operation. Monitoring observations show that the program is working well and pupils appear to be enthusiastic about the multi-media centers.

FINAL REPORT

March 1977 - June 1977

At year end, faculty at the two schools reported that 254 pupils were having contact with the program. At the elementary site, 35 spoke Korean, 25 spoke Portugese, and 30 spoke Spanish. These pupils were enrolled in the full bilingual program. Twenty-three pupils spoke other languages; for a total site enrollment of 113 pupils. The Korean teachers speak Vietnamese and were able to provide instructional support in this language to three pupils. All pupils studied ESOL and were rostered for the Multi-Media center as part of their ESOL instruction.

At the secondary site 33 of the 141 pupils were of Vietnamese origin, 25 were Chinese, 30 were Hispanic, 21 were Korean, 18 were Italian, 9 were Haitian, 3 were French, and 2 were Greek. As the program developed, the languages in which pupils could study changed. French-speaking pupils from Vietnam, Haiti and France were studying French as a first language at the

beginning of the school year. When a Vietnamese faculty member (the site coordinator) was added to the teaching staff, 13 Vietnamese pupils continued in a French class for three days per week and received instruction in Vietnamese two days per week.

The dominant language of pupils cannot be inferred solely from their ethnic origin. Thus, 24 pupils, including those who continued studying French, studied Vietnamese as a first language. Of thirty-three pupils studying a Chinese language, nine were of Vietnamese extraction. The nine Haitian and three French pupils studied French. All Koreans, Italians and Hispanics studied their respective languages. A Chinese pupil and the two Greek pupils studied English as a second language, but not their mother tongue. As was the case at the elementary site, all pupils studied ESOL and had access to the Multi-Media Learning Center.

Evaluation of product, or pupil performance, objectives was conducted in the late Spring (April through June). During this period, it was possible to gather at least some information about each of these objectives. The tentative findings reflect the effect of the program as it was being implemented and should not be confused with the evaluation of a school-year-long program.

Product Objective 1 focused on the rate of acquisition of English. It was possible to evaluate aural comprehension skills at year end, and demonstrate that pupils in the program scored statistically significantly higher ($p < .01$) than did similar pupils in other schools (i.e., pupils whose Sex, Age, Grade, Ethnic Background, Years in an English-speaking Area, and Months of ESOL were the same).

This finding was based on extension of the statistical regression analyses of Test of Aural Comprehension (TAC) scores reported in the Appendix (see pages 15 thru 17). These analyses showed that the city-wide Title I ESOL program increased English competence.

The Individualized Multi-Media Magnet Model program provided resources not found city-wide. It was therefore possible to ask: did its participants score higher than other, similar ESOL pupils? One way to determine whether they did or not was to examine the residuals, or the differences between pupils' actual scores and predictions from the regression analyses. Findings about the performance of pupils for whom background data were complete can be found in Table 1.

At South Philadelphia High School, results were mixed. Pupils who were tested with Form A of the TAC scored lower than predicted by the regression equation, pupils tests with Form B scored higher than predicted. At Birney Elementary School, pupils consistently performed better than predicted. When the results from both schools were combined, there was a trend for pupils who

TABLE I

OBJECTIVE 1, ANALYSIS OF TAC RESIDUALS

Site	Test Form A N	A Mean Residual	Test Form B N	B Mean Residual
S. Philadelphia H.S.	22	-0.96	19	1.21
Birney Elementary S.	24	3.54	8	15.35
Both Sites	46	1.39	27	5.40

Analysis of Scores of Both Sites		
Test Form	A	B
Number of Pupils	46	27
Mean Residual	1.39	5.40
Standard Error of Mean Residual	1.21	1.98
Z of Mean Residual	1.15	2.72
Statistical Significance of Improvement	$p<.15$	$p<.003$

Statistical significance of improvement when TAC-A and TAC-B results are combined: $p<.01$

took TAC A to outperform similar pupils city wide. Pupils who took TAC B were statistically significantly better than predicted. When statistical significances of the findngs of both forms were combined, scores were significantly above predictions derived from TAC scores of pupils in ESOL across the city ($p < .01$). This suggested that an Individualized Multi-Media Magnet Model program enhanced pupils' comprehension of English, with enhancement clearest at the elementary school level.

Product Objective 2 described expected acquisition of reading skills, as measured by the Wide Range Reading Test (WRRT). It was possible to administer the test in the Spring and obtain a description of pupil performance. Overall, results showed that the ethnic background of the pupils and their ages were important elements in predicting pupils' performance. Non-Hispanic speakers of European languages and over-school-age pupils tended to out-perform other students.

The WRRT involves the reading aloud of English words of increasing difficulty. It was individually administered by a researcher who attempted to discount the influence of accent when a word was read. Despite this attempt, WRRT scores are no doubt influenced by mastery of basic English phonology.

Table 2 shows WRRT scores organized by ethnic origin: Asian, Hispanic and other European languages. At the elementary school, performance of the three groups was similar. Grade equivalent scores averaged about the sixth month of the second grade. At the high school Asian and Hispanic pupils scored below the non-Hispanic "Other European" group. Asians and Hispanics had mean scores equivalent to the middle of the 7th and the beginning of the 8th grade according to the published norms. Scores of pupils speaking "Other European" languages (and not Asians) averaged in the middle of the high school range.

Figure 1 shows the relationship between Grade Level and WRRT score. As can be expected in a population like the one served by this program, scores at all grade levels were below the test maker's norms for native English-speaking pupils. Overall, pupils' grade equivalent scores were about three-quarters of the scores one would expect if participants were native English speaking pupils. For example, in the eighth month of the 3rd grade, the pupils averaged 2.71, or about three-quarters of 3.8.

Figure 2 shows the relationship between WRRT and Age. At the elementary school there was a general upward trend (the peaks and dips are to be expected because of the relatively small number of pupils in most age groups). At the high school the pattern was quite different. Youngest and oldest pupils had high scores. Pupils of common high school age (sixteen through eighteen years old) tended to have grade equivalent scores in the 7th and 8th grade range.

TABLE 2

WIDE-RANGE READING TEST GRADE EQUIVALENT SCORES
CATEGORIZED BY ETHNIC ORIGIN OF PUPILS
AND BY SITE

	Elementary School			High School		
Ethnic Group	N	Mean	SD	N	Mean	SD
Asian	39	2.77	1.50	46	7.57	3.18
Hispanic	40	2.53	1.30	17	8.27	3.59
Other European	24	2.43	1.45	20	11.03	3.05
All Groups	103	2.59	1.42	83	8.55	3.54

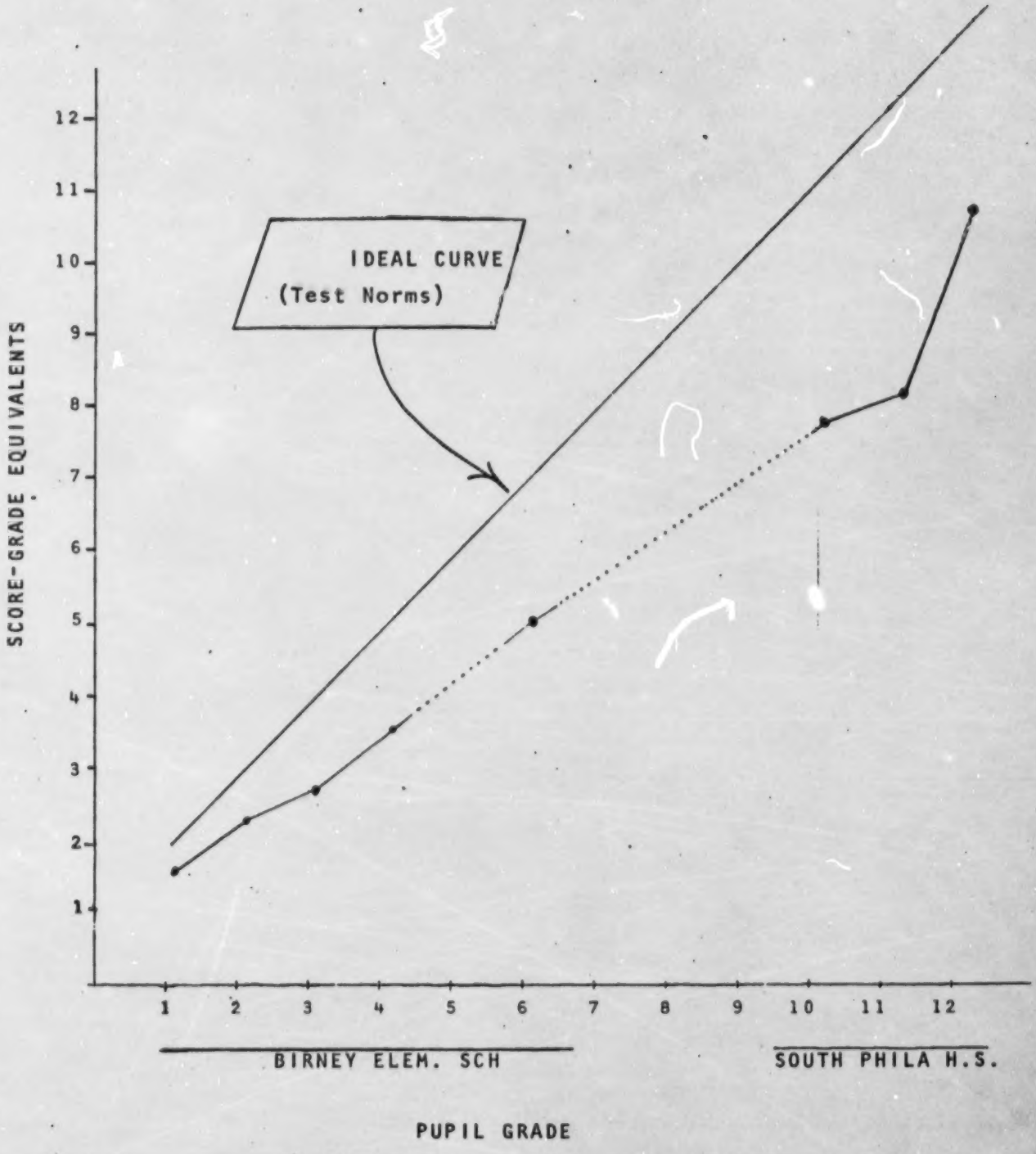

Figure 1. Relationship between grade level and Wide Range Reading Test scores

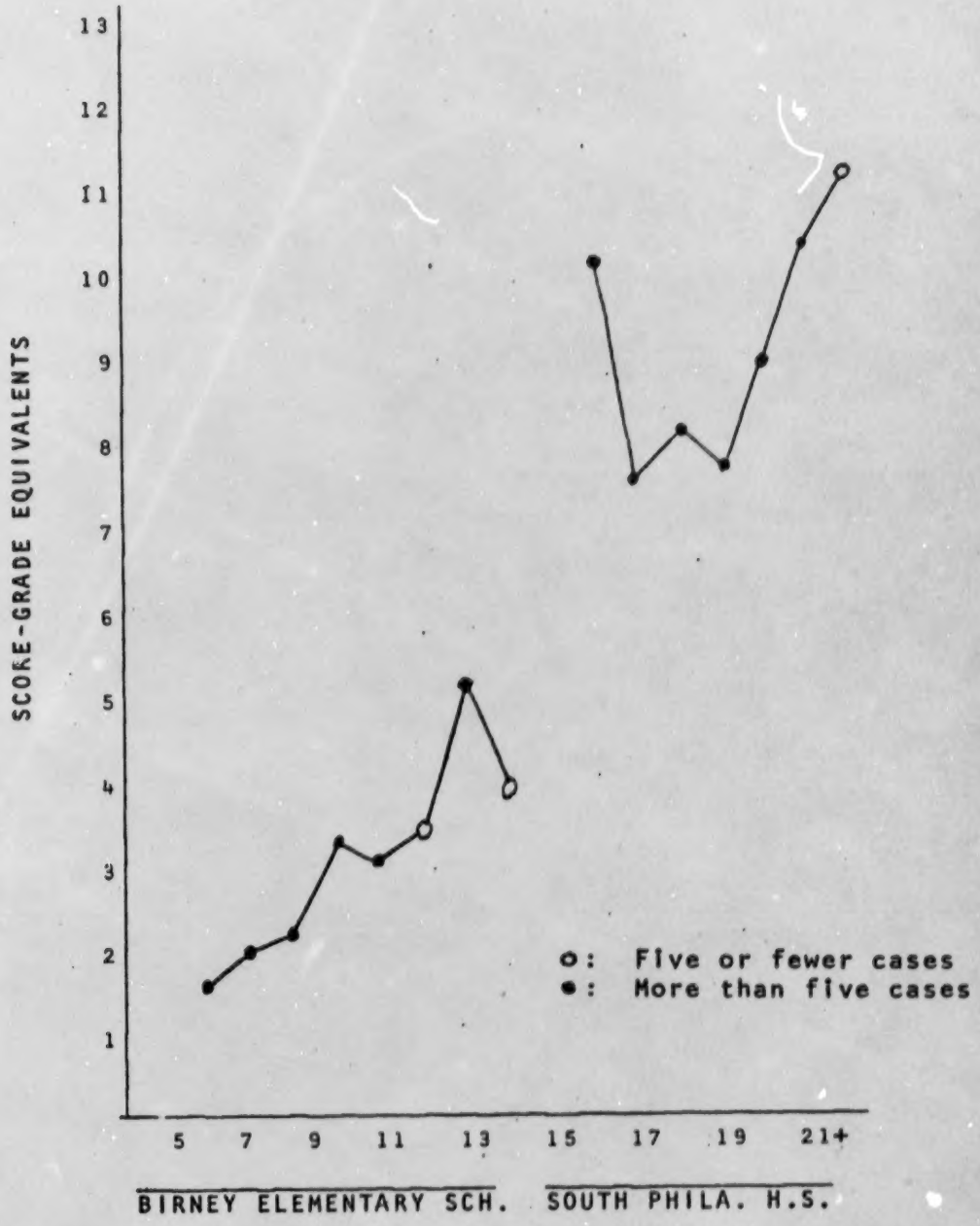

Figure 2. Relationship between age and Wide Range Reading Test scores

Product Objective 3 described gains of Hispanic pupils' competence in reading Spanish. Although during the Spring 1977, pupils were tested, the number was too small to draw any firm conclusion.

At the elementary school site, pupils in Grades 1-3 were tested with Test de destrezas basicas en lectura. The one first-grade pupil scored at the 95th percentile; the average score of the three second-grade pupils was equivalent to the 50th percentile and the 12 third-grade pupils' average score was equivalent to the 20th percentile when compared with rural Puerto Rican end-of-year norms.

Pupils in Grades 4 and 6 were tested with Prueba de lectura (de Puerto Rico). The average score of the ten 4th-grade pupils who were examined with the complete test was equivalent to the 10th percentile of rural Puerto Rican end-of-year norms. The two 6th-grade pupils' average score was equivalent to the 5th percentile on these norms.

The pattern of test scores observed at the elementary school was similar to the one found in the Let's Be Amigos project, which was begun in 1959. Pupils in lower grade levels had average scores at or above Puerto Rican norms. Pupils in higher grade levels averaged below these norms. (See Offenberg et. al, The Title VII Project Let's Be Amigos: Evaluation of the Sixth Year, 1974-1975. School District of Philadelphia, 1976, pgs. 26-34).

At the high-school level, pupils were tested with the Prueba de Lectura Inter-americana (L4, CEs). This test was designed for junior high school pupils, but previous experience with Hispanic pupils in bilingual programs suggested it would be more reliable than the level designed for high school. A table of equivalent scores of adjacent test levels was used to obtain percentile ranks appropriate for high-school grades. (Manual of Tests of General Ability and Tests of Reading, Inter-American Series, Forms CE and GEs, DE and DEs., Austin, Texas: Guidance Testing Associates, 1967)

The seven 10th-grade pupils averaged 36.8, equivalent to a fall island-wide Puerto Rican percentile rank of 32.8. The ten 11th-grade pupils averaged 38.5, equivalent to a fall percentile rank of 22.9. (There were no tests of twelth-grade pupils)

The high school percentile ranks are substantially above those obtained when Hispanic high school pupils of the Let's Be Amigos program were tested. (See Offenberg Op. Cit. p. 45-51).

Product Objective 4 described an anticipated reduction of the drop-out incidence in the high school component. Eighty-two pupils were on roll in ESOL and/or were receiving instruction in their mother tongue in October 1976. Of these, five left school during the school year -- one moved, one was committed to a correctional institution, and three (3.8%) dropped out of school.

The proposal called for comparison of these data with the drop-out rate among similar pupils who attended the same school the year before the program was implemented. This was not possible because the pupils identified by school personnel during the base-line year did not appear to come from a comparable group.

Product Objective 5 described anticipated changes in high school pupils' attendance. Among pupils who attended South Philadelphia High School in both 1975-1976 and in 1976-1977 no significant change in attendance was observed. In 1976-1977 nine Hispanic pupils in this group were present an average of 80.1% of the days, 17 Asian pupils averaged 93.6%, and 14 speakers of European languages other than Spanish averaged 86.0%. A sign test was computed to compare each pupil's attendance with that of his/her previous year. The computations yielded a z of .65 which was not significant.

Pupils who attended the high school for the first time in 1976-1977 had poorer attendance records than did the pupils who had attended the school for two years. The 15 Hispanic pupils in this group averaged 77.6% present, the 48 Asians averaged 86.0%, and the 10 speakers of other European languages averaged 63.8%.

Discussion

Pupil performance data reflect one-half year of pre-program instruction, and one-half year of the Individualized Multi-Media Bilingual program. Even so, aural comprehension scores were significantly higher than expected at the two target schools.

Findings in other areas may be useful as a context, in which the results of 1977-1978 may be interpreted. Testing of reading in English suggested that it would be adivisable to use another instrument in addition to, or instead of, the WRRT for summative evaluation. As the Wide Range Reading Test measures decoding and word recognition, it is possible that the scores reported are inflated. If the pupils were examined with an instrument demanding comprehension, the scores might be lower. Evaluators had this impression during the testing.

Despite this concern, the WRRT provided information which can be used by project management. At the secondary level, it revealed that youngest and over-age pupils had high scores, and that the ethnic origin of the pupil is related to score. This suggested that there were subgroups of pupils within the program with heterogeneous needs. The BIMLC will probably be especially valuable at the secondary level because it accomodates heterogeneous pupil populations easily.

In the course of testing Hispanic pupils in the mother tongue, it became evident that, especially at the elementary school site, the number of pupils in a grade who spoke this language was too small to yield stable program assessment

data. When the number of pupils in a grade is low, as the number of elementary school Hispanics often was, testing in the first language may be useful for the individual pupil, but statements about program effectiveness are risky. With the risk acknowledged, it appears that the pattern at the elementary school site was similar to the pattern observed in the older, Let's Be Amigos project -- performance was as good as, or better than, Puerto Rican norms in the lower grades, but declined when compared to these norms in higher grades of elementary school.

In addition to their linguistic diversity, high-school pupils in this program appear to differ in at least two ways from the bilingual high school program which was established with Title VII funds as part of the Let's Be Amigos Project. First, Hispanic pupils read Spanish better than did pupils in the last evaluation of that project. Second, preliminary evidence gathered about drop-out incidence suggested that high-school program participants were very unlikely to leave school. The dropout rate of 3.85% is markedly lower than the 1976-1977 city-wide high-school rate (21.2%), the rate for all pupils attending South Philadelphia High School (26.7%), and the rate for Hispanic pupils attending the school (24.0%). This suggested that the high school program may not have recruited all pupils who might have benefitted. During the coming years, full implementation of the pupil recruitment objective should be given special attention in order to assure that there are no other pupils who should participate in the program.

In conclusion, An Individualized Multi-Media Bilingual Program appears to have had as successful a first year as possible, considering the hurdle of late funding. There is evidence that pupils performed well, stayed in school, and, especially at the elementary school site, pupils had aural comprehension levels above those enrolled in ESOL in other educational settings.

APPENDIX

EVALUATION OF THE AURAL COMPREHENSION OBJECTIVE OF THE CITY WIDE TITLE I ENGLISH TO SPEAKERS OF OTHER LANGUAGES PROGRAM

OBJECTIVE

The longer a pupil studies ESOL, the higher he/she will score on the Test of Aural Comprehension of English (TAC) when the pupil's background is taken into account. A regression equation computed on tests administered in March, 1977 will show a statistically significant relation ($p<.10$) between the length of time a pupil studied ESOL and TAC scores when sex, age, grade, place of birth, mother tongue and length of residence on the mainland are controlled.

This objective was attained.

The TAC was administered in March and April in Grades 1-12 at all participating schools. A total of 1,503 pupils were tested with either form of the test (A or B). Analysis of the 867 pupils with complete information is based on the general linear model and indicates a positive relation between test scores and length of time in an ESOL/bilingual program. This relationship was statistically more significant than the specified .10 level. The results suggest that aural comprehension tends to increase with continued participation in ESOL to an extent beyond that which could be expected from the pupils' backgrounds and their living in an English-speaking environment without studying ESOL. The results of the regression analysis of Form A are shown in Table 1, of Form B in Table 2.

The variable sex was held statistically constant to control for different rates of growth in language acquisition between boys and girls and for possible biases that might result from some schools serving only boys or girls. Table 1 shows that for the model posited, the relation between sex (coded 0 for males and 1 for females) and score on Form A is not significant. Table 2 confirms this finding in the analysis of Form B. This may be interpreted as indicating that for the skills covered by the TAC, there is no difference in score attributable to sex. It may also be interpreted as showing the TAC is equally fair to both sexes.

Since TAC scores probably reflect skills acquired in school, grade was held constant. Tables 1 and 2 indicate that for both forms of the TAC a pupil is likely to know 2.6 items more than an equivalent pupil who is one grade lower. As expected, this impact of grade is highly significant.

The age of the pupil was not significantly related to score when other variables were taken into account. The high collinearity between age and grade (their correlation is about .97) makes interpretation difficult.

The ethnic background of the pupil was also considered in the analysis. Pupils whose mother tongue is Spanish were coded as 0 and all other language groups were coded as 1. Where information about mother tongue was missing, place of birth (Puerto Rico or other) was used. Controlling for this variable, it was thought, would reduce the influence of social and ethnic characteristics on program evaluation. The two test forms yielded inconsistent results, both for the direction of the relationship and its significance. Hispanic pupils did significantly better on Form A but on Form B there was no significant difference between the two ethnic groups. This suggests that further inquiry is necessary.

The acquisition of language skills would seem to be related to the amount of exposure to English outside of the program. One measure of this construct is the time in the continental United States. Table 1 indicates that an additional year in an English-speaking area increases scores on TAC-A by 1.14 items and Table 2 shows the increase to be a bit less than one item.

The key question is whether participation in an ESOL program contributes to aural comprehension over and beyond the contributions of grade, age, sex, ethnic background and number of years on the mainland. Tables 1 and 2 show a significant positive relation between months in ESOL (based on 10-month years) and test scores, independent of the other variables.

The results in Tables 1 and 2 predict that an additional month on the mainland when the pupil is not attending school will increase his score by .036 on TAC-A and .032 on TAC-B. If the pupil spends this month in school without an ESOL program the improvement will rise to .301 and .212. If the pupil is participating in an ESOL program the improvement will rise to .462 and .415. Thus we conclude that there is an increase of more than four points for the average pupil over the 10-month academic year. Since the average score is 18.9 for pupils taking TAC-A in the spring and 21.3 for TAC-B, these gains are considered substantial.

TABLE 1

REGRESSION OF TAC-A SCORE ON VARIOUS ESOL PUPIL CHARACTERISTICS

Independent Variable	b Weight	Significance
Sex	-.235	.776
Grade	2.646	.0001
Age	-.706	.1217
Ethnic Background	-1.65	.0986
Years in English-speaking Area	1.143	.0001
Months in Program	.161	.0001

Based on 460 cases for whom all relevant information was available.

Mean score = 18.966, S.D.=8.732, multiple R^2=.454

TABLE 2

REGRESSION OF TAC-R SCORE ON VARIOUS ESOL PUPIL CHARACTERISTICS

Independent Variable	b Weight	Significance
Sex	.682	.5137
Grade	2.594	.0003
Age	-.508	.4283
Ethnic Background	.044	.9734
Years in English-speaking Area	.895	.0001
Months in Program	.123	.0224

Based on 407 cases for whom all relevant information was available.

Mean score = 21.333, S.D. =10.306, multiple R^2=.368